



Symmetries and the Pauli Exclusion Principle

Guest Editors:

Dr. Catalina Oana Curceanu

LNF-INFN (National Laboratory of Frascati, National Institute for Nuclear Physics), 00044 Frascati, Italy

Dr. Kristian Piscicchia

Centro Fermi - Historical Museum of Physics and Enrico Fermi Study and Research Center, 00184 Roma, Italy

Deadline for manuscript submissions:

closed (30 June 2022)

Message from the Guest Editors

Dear Colleagues,

The Pauli Exclusion Principle, as a manifestation of the spin–statistics relation, is deeply connected to space–time symmetries. Possible violations or deformations of these symmetries may reflect in violations of the Pauli Exclusion Principle. Recent experiments set strong limits on the probability that the principle gets violated. In this issue we shall focus on the relation between various symmetries and their possible violations or deformations and the consequences of the Pauli Exclusion Principle for various classes of fermions, such as (but not only): electrons, nucleons and neutrinos. In particular, we shall consider the CPT and Lorentz symmetries, as well as noncommutative theories, also inspired from quantum gravity scenarios. Recent experimental results from experiments searching for small violations of the Pauli Exclusion Principle will be discussed, together with the limits they impose on symmetries/asymmetries embedded in our theories about nature and the universe.

Dr. Catalina Oana Curceanu

Dr. Kristian Piscicchia

Guest Editors





an Open Access Journal by MDPI

Editor-in-Chief

Prof. Dr. Sergei Odintsov

1. Institució Catalana de Recerca
i Estudis Avançats (ICREA),
Passeig Luis Companys, 23,
08010 Barcelona, Spain
2. Institute of Space Sciences
(ICE-CSIC), C. Can Magrans s/n,
08193 Barcelona, Spain

Message from the Editor-in-Chief

Symmetry is ultimately the most important concept in natural sciences. It is not surprising then that very basic and fundamental research achievements are related to symmetry. For instance, the Nobel Prize in Physics 1979 (Glashow, Salam, Weinberg) was received for a unified symmetry description of electromagnetic and weak interactions, while the Nobel Prize in Physics 2008 (Nambu, Kobayashi, Maskawa) was received for the discovery of the mechanism of spontaneous breaking of symmetry, including CP symmetry. Our journal is named *Symmetry* and it manifests its fundamental role in nature.

Author Benefits

Open Access: free for readers, with article processing charges (APC) paid by authors or their institutions.

High Visibility: indexed within SCIE (Web of Science), Scopus, CAPlus / SciFinder, Inspec, Astrophysics Data System, and other databases.

Journal Rank: JCR - Q2 (*Multidisciplinary Sciences*) / CiteScore - Q1 (General Mathematics)

Contact Us

Symmetry Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland

Tel: +41 61 683 77 34
www.mdpi.com

mdpi.com/journal/symmetry
symmetry@mdpi.com
X@Symmetry_MDPI